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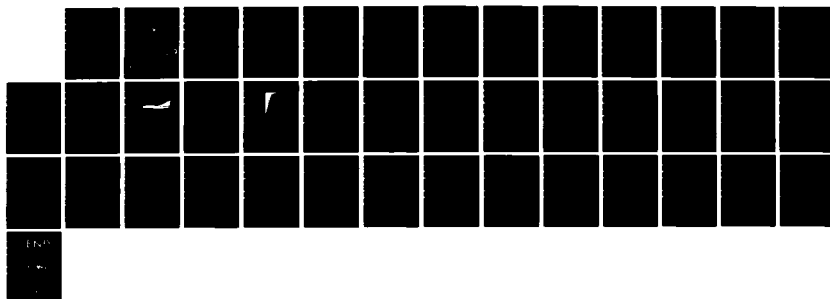
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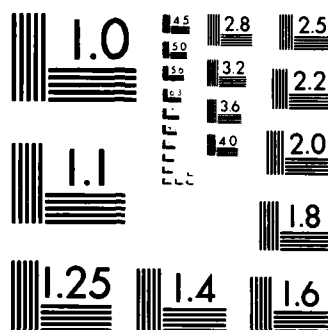
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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

COMPONENT BREAKOUT

MAJOR THOMAS H. SCHLESINGER

85-2320

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REPORT NUMBER 65-2320

TITLE COMPONENT BREAKOUT

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

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PREFACE

1. The purpose of this study is to examine the current acquisition procedures for component breakout and determine what changes can be incorporated to enhance this process. The first chapter will establish how component breakout opportunities enhance material acquisition and save taxpayers' dollars. Subcontract management will be defined in preparation for assuming this responsibility from the prime contractor after breakout, and will explain the major problem areas that hinder breakout. The second chapter will review the current authority and regulations that address the acquisition process and component breakout. The third chapter will discuss and analyze the impact of a recent Air Force report on spare parts acquisition and a new public law to enhance procurement competition. Finally, based on the existing procedures, the Air Force report and the new public law, the findings, the conclusions, and the recommendations of this research effort will be presented.

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Major Thomas H. Schlesinger is a 1971 graduate of Texas A & M University with a BBA in Management, and was commissioned through ROTC. He completed pilot training at Laughlin AFB, in 1972, and was assigned to McGuire AFB, as a C-141 pilot. During the seven years at McGuire AFB, he was a C-141 flight examiner and a Airlift Control Element officer. After a two year assignment at the U.S. Air Force Airlift Center at Pope AFB, as the Chief of C-141 studies, he moved to HQ MAC. While at Scott AFB, he was assigned to the Systems Division in the Directorate of Operational Requirements and Test. From 1981 until 1984, he was the MAC program manager for the C-141/C-5 Fuel Savings Advisory System, the C-130/C-141 Enhanced Station Keeping Equipment, the C-130 Self-Contained Navigation System, The Night Vision Goggle Compatible Aircraft Lighting Modifications, and the Infrared Aircraft Landing System. Major Schlesinger completed SOS in residence in 1975 and ACSC by seminar before attending the residence course of 1985.

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REPORT NUMBER 85-2320

AUTHOR(S) MAJOR THOMAS H. SCHLESINGER

TITLE COMPONENT BREAKOUT

I. Purpose: To examine the current acquisition procedures for component breakout and determine what changes could be made to enhance this process.

II. Problem: The efficiency of the military's procurement process is in question by the Congress and the taxpayers after media highlights of \$300 stool caps, \$7400 coffee pots, and \$600 toilet seats. Component breakout is a means of accomplishing improved efficiency by reducing costs and encouraging competition in future reprocurments. Obstacles which preclude component breakout must be identified and overcome, if possible.

III. Data: The percentage of dollars which are spent for the procurement of spare parts in a competitive environment has declined 17% in the last nine years. There are many problems which contribute to the overpricing of items which are not procured competitively, but missing or inadequate engineering data and limited data rights assertions are the primary hindrances to component breakout. Acquisition planning must be performed early in the procurement process to identify components to be provided as government-furnished, the program control documents needed to perform subcontract management, and for the future breakout of other selected components. The Air Force Management Analysis Group's report on spare parts acquisition contains 159 recommendations to improve the efficiency of the

CONTINUED

procurement process. Additional changes to enhance procurement and component breakout have been recently enacted by Public Law 98-577.

IV. Conclusions: Early identification and incorporation into the contract of program control reporting documents will provide the capability to effectively perform subcontract management. The lack of competition in the acquisition of spare parts is primarily due to missing or inadequate engineering data, and sole source procurement of items with limited data rights assertions which preclude the development of alternate manufacturing sources. The numerous recommendations of the AFMAG's report, which are currently being implemented, should significantly reduce acquisition costs and increase competition through improved data management, competition advocates, and a value based cost allocating method, all of which will enhance component breakout opportunities. The existing acquisition authority and AF regulations contain adequate guidance and flexibility to plan for and to accomplish component breakout. PL 98-577 is a positive effort, by the Congress, to remove the two major problem areas which inhibit component breakout; namely, data rights and alternate manufacturing sources.

V. Recommendations: The remaining AFMAG recommendations and PL 98-577 should be implemented as quickly as possible. No further changes to component breakout procedures should be considered until the impact and results of all of the AFMAG recommendations and PL 98-577 have been reviewed and evaluated.

GLOSSARY

ABBREVIATIONS

ACO	administrative contracting officer
AFLC	Air Force Logistics Command
AFMAG	Air Force Management Analysis Group
AFR	Air Force Regulation
AFSC	Air Force Systems Command
AP	acquisition plan
BSP	Business Strategy Panel
CCDR	Contract Cost Data Reporting
CDRL	contract data requirements list
CFE	contractor-furnished equipment
CPR	Cost Performance Report
CPSR	contractor purchasing system review
C/SCSC	Cost/Schedule Control Systems Criteria
CSP	Contract Strategy Paper
C/SSR	Cost/Schedule Status Report
DAR	Defense Acquisition Regulation
DCP	Decision Coordination Paper
DOD	Department of Defense
DODD	Department of Defense Directive
DODI	Department of Defense Instruction
FAR	Federal Acquisition Regulation
GFE	government-furnished equipment
IPS	Integrated Program Summary
JMSNS	justification for major system new start
LCC	life cycle cost
LEP	lowest evaluated price
OMB	Office of Management and Budget
PCO	procuring contracting officer
PL	public law
PM	program manager
PMP	program management plan
RFP	request for proposal
SCP	Systems Concept Paper
SRP	Solicitation Review Panel

Chapter One

BACKGROUND

INTRODUCTION

"In the past 35 years, the DoD and the Congress have initiated numerous studies and implemented several management, contracting and manufacturing changes in the name of increased procurement efficiency, yet program delays and cost overruns persist" (1:16). In the 1980s, the Reagan administration reversed the decline of defense spending which prevailed in the 1970s. The defense spending increases, required to strengthen U.S. military posture, also bring increased congressional and public interest in the military's allocation of the considerable resources in a more efficient manner. Media highlights of \$300 stool caps, \$7400 coffee pots, and \$600 toilet seats do little to increase congressional or public confidence in the efficiency of the military's procurement process. The origins of current procurement reform lie in the Carlucci Initiatives. One of the a major thrusts of the Carlucci initiatives, and this study, is to improve the acquisition process by reducing costs and encouraging competition. Component breakout is a means of accomplishing improved efficiency. The purpose of this paper is to examine the current manner in which component breakout is accomplished and recommend changes that will enhance this process.

DEFINITION

Component breakout occurs when the government purchases a component and furnishes it to an end item contractor as government-furnished equipment (GFE) for incorporation in an end item. Breakout is dependent on achieving substantial cost savings, providing it doesn't jeopardize the quality, reliability, performance or timely delivery of an end item (4:1:60). Component breakout saves money by avoiding prime contractor charges such as material burden, general and administration expense, and profit, which the contractor adds to the price of contractor-furnished equipment (CFE). These charges do not apply to GFE supplied components (8:29). Component breakout also enables cost savings and enhanced competition opportunities by having the ability to obtain competitive bids for reprocurement of components throughout

the remainder of their life cycles. Before analyzing how component breakout from a prime contractor reduces costs and enhances competition, we need to first understand the concept of subcontract management.

SUBCONTRACT MANAGEMENT

Nearly 50 cents of every procurement dollar paid to a prime contractor goes to a subcontractor (19:13). "Subcontracting refers to the procurement of an item or service, by a prime contractor, who is not normally capable of economic production in the prime contractor's own facilities" (19:2). The effort of a prime contractor to ensure the subcontractor provides the item as contractually agreed is subcontract management. Five broad categories, listed below, describe the level of effort in the various stages of subcontracting:

A. Quotation Phase--The tasks of locating potential sources, development of requests for proposals, performance of risk analyses, and refinement of requirements should be formed during this phase. Additional tasks include the definition of requirements and the solicitation of responsive quotations from qualified sources.

B. Evaluation and Analysis Phase--A detailed review of proposals from potential subcontractors should be performed by competent personnel to develop sufficient factual information for presentation to top management in evaluating subcontracting risks and pricing prerogatives.

C. Negotiation Phase--The prime contractor's subcontract management team should approach the prime/subcontractor negotiations with clearly defined management objectives. The agreements or understanding reached, during the negotiation should be recorded on a continuous basis to facilitate subsequent drafting of the final contract, and preparation of the subcontract negotiation memorandum and file.

D. Award Phase--External, as well as internal, to the prime contractor's program office, review of the documented negotiation results and draft subcontract must be accomplished to assure that: the formal contract correctly reflects the agreement, that all documentation is in order, and necessary approvals or consent are obtained.

E. Administration Phase--Liaison must be accomplished on a continuous basis. Full prime contractor internal organizational support must be provided to the prime's subcontract management personnel during this phase to insure that timely, technically adequate, and cost effective end items are obtained. If the subcontract requires the subcontractor to develop a computer, the prime's subcontract management personnel must be cognizant of the problems which may develop and obtain expert computer engineering talent to assess, on a continuing basis, specifics in sensitive development parameters. Prime contractor effort in this phase should cease only when the subcontract is completed (19:3-4).

These tasks provide insight into the numerous and complex actions that occur during each phase of subcontract management. In a sense, these same phases apply to the relationship between an Air Force (AF) program office/manager and a prime contractor. The responsibilities of the program office/manager are equally complex in monitoring the prime contractor's performance of the contract.

Although it is desirable for the program office/manager to direct a subcontractor's efforts without going through the prime contractor, the legal principle of "privity of contract" precludes this action.

The exclusion of third parties from enforcement of common law contracts stems from the belief that the absence of the third party under the terms of the original contract manifests the intent of the original parties and that the third party should not be to assert himself forcibly into the original relationship (19:7).

Based on this legal restriction, the program office/manager can only influence subcontractors through the prime contractor. Yet, the large expenditure of procurement dollars demands better subcontract management. Although unable to directly influence subcontractors, the program office/manager is responsible for the smooth transition of subcontract management responsibilities from the prime contractor to the DOD during component breakout. Effective subcontract management ensures competition produces quality items at competitive prices.

COMPETITION

The lack of competition within the AF spare parts acquisition process is a growing source of congressional and public concern. The competition rate for spare parts procured by the AF declined from a high of 37.5% in 1973 to

20.7% in 1982. Figure 1 graphically depicts the decline in the amount of spare parts acquired through competitive procurement and the amount of dollars being spent.

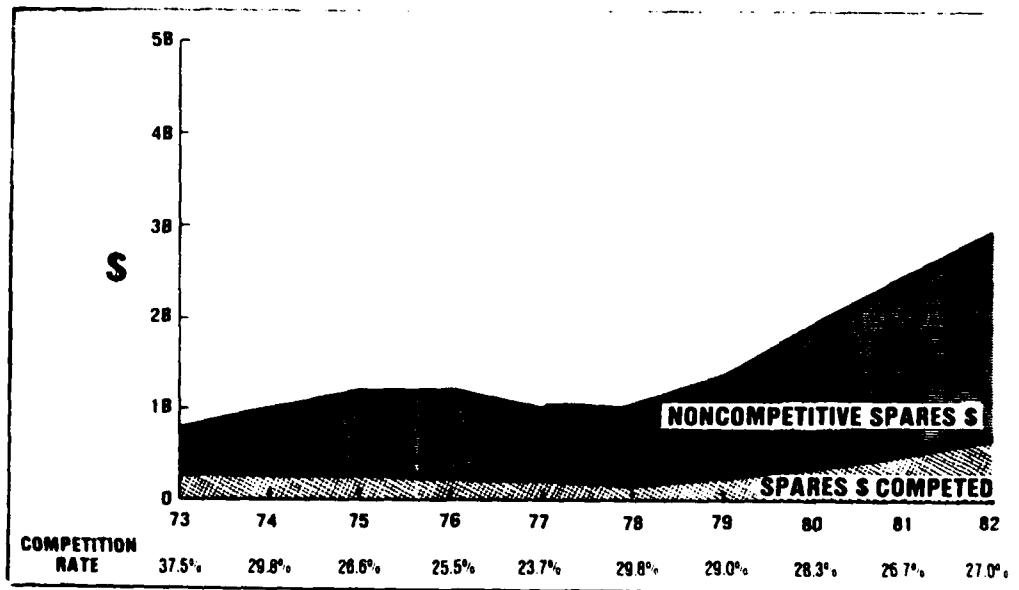


Figure 1. Spare Parts Competition (11:2-12)

The large increase in the dollar value of spares bought in the noncompetitive area reflects the influence of factors beyond the control of the procuring activity. The primary reason is the fielding of new weapon systems early in the production phase of acquisition. During this phase of development the engineering design of system components is not yet stable; therefore, breakout is not feasible. Design stability must be an established criteria before cost savings can be realized by conversion of CFE to GFE and/or competitive reprocurement. However, competitive reprocurement assumes alternate manufacturing sources are competitive. Yet, from 1964 to 1980, the number of defense suppliers decreased from 6000 to 3500, respectively (11:2-19). The lack of component breakout due to unstable engineering design and the declining number of defense contractors contribute to a sole source environment. Lack of engineering data or the rights to that data also result in a sole source situation which precludes component breakout as well.

DATA RIGHTS

Before breaking out an item for competitive reprocurement, the program office/manager must be able to provide a complete engineering and acquisition data package which allows other sources to manufacture the item. "Approximately 57,000 or 16% of the 364,000 spare parts currently coded with a procurement source code are usually purchased from the prime contractor on a sole source basis because the requisite data is either missing or inadequate"

(11:2-16). While engineering data usually acquired during development or production contracts is obtained in the early design stages, when the system design has not been fully stabilized, changes to the design are not always incorporated into the data packages as the system matures. "The adequacy of the data can only be determined, in most cases, at the time it is attempted to be used for competitive reprocurement, long after the data was developed, delivered and accepted" (11:2-17). The lack of data rights, due to proprietary assertions, also restricts the breakout opportunities and competitive reprocurement. Presently, of the 364,000 spare parts, 8% or 29,000 have limited rights in data (11:2-16). A shortage of technically qualified personnel is the primary reason why the AF has done little to challenge the proprietary rights on spare parts. (11:2-16,46). These are the main reasons why breakout cannot be accomplished, with respect to data packages. Components that are broken out and provided as GFE, however, can contribute to a major cost savings by avoiding overhead or pass through charges. The pass through charges are another term for the mark up that a contractor adds to the item price.

OVERHEAD

Vendors, not prime contractors, manufacture a large number of spare parts. Vendors deliver these parts to the prime either in an unfinished or a finished condition. An unfinished condition requires the prime contractors to perform additional work on the part before it is incorporated into the end item. A finished condition, on the other hand, means the prime adds no value to the part before it is incorporated into the end item. In either case, an overhead or pass through cost is added to the vendor's price by the prime contractor. These costs, or mark up rates, vary by contractor. Figure 2 shows the mark up rate for eighteen different contractors which range from a high of 250% to a low of 28%, with a median rate of 76%. These varying mark up rates, which can be avoided after component breakout, significantly increase the unit price of components procured by prime contractors.

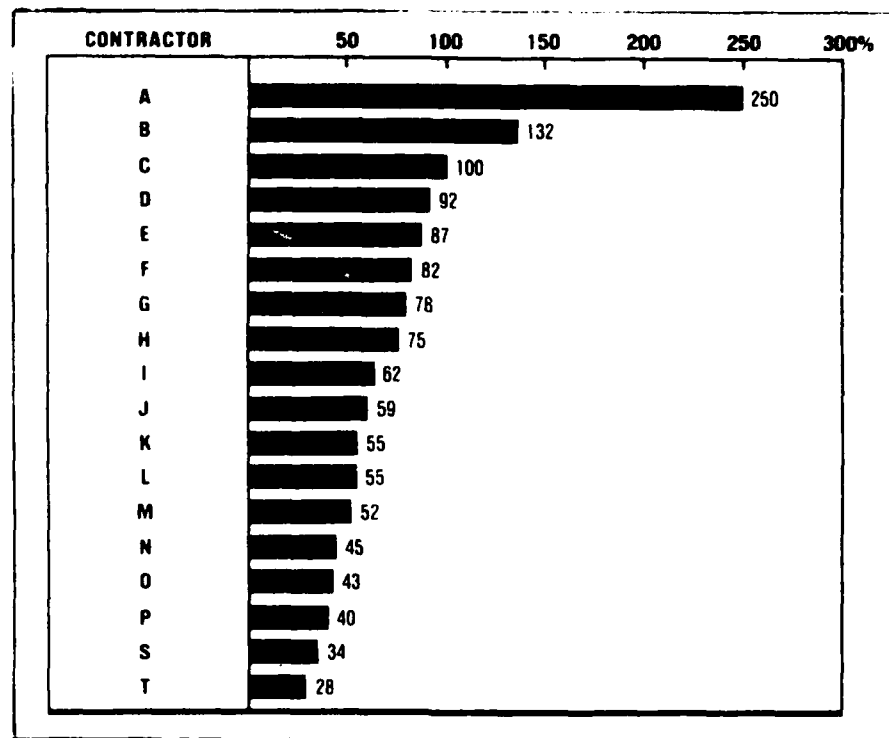


Figure 2. Contractor Mark Up Rates of Purchased Items (11:2-32)

SUMMARY

This chapter establishes the importance and the need to reduce acquisition costs while enhancing competition. Isolated cases of parts overpricing have increased congressional concern and public opinion on how the defense budget resources are being allocated. Component breakout is defined both as a means of reducing costs by providing components as GFE and enhancing competition through competitive reprocurement. The complexity of subcontract management is discussed since the government assumes this responsibility from the prime after breakout. The lack of competition in spare parts procurement is highlighted as well as the shrinking base of industrial suppliers and alternate manufacturing sources. The problems that currently exist with incomplete data packages are addressed, and finally the varying overhead costs charged by contractors are presented. Thus, this chapter identifies the fiscal advantages that could be achieved from component breakout and enhanced competition; yet, is there the necessary authority available to implement component breakout? The next chapter examines the existing sources of authority for implementing component breakout.

Chapter Two

BREAKOUT PROCEDURES

INTRODUCTION

The previous chapter establishes the importance of component breakout in conjunction with reducing costs and enhancing competition. The lack of competition in spare parts acquisition and contractor mark up rates significantly increase unit cost. The two major problem areas inhibiting component breakout are engineering data packages and qualified alternate manufacturing sources. The incomplete or missing data packages as well as proprietary assertions prevent competitive reprourement. These data problems, coupled with a decline in the number of suppliers from the industrial base, restrict the identification and qualification of alternate manufacturing sources, further limiting component breakout opportunities.

This chapter highlights the current authority for component breakout. The examination covers the Office of Management and Budget (OMB) Circulars, the Federal Acquisition Regulation (FAR), the Department of Defense Directives (DODD) and Instructions (DODI), and the Air Force Regulations (AFR) which implement the authority references mentioned above. The AF directives are reviewed in detail. The chapter focuses on breakout ranging from the major weapon system to the replacement spare parts. The starting point for this discussion is the OMB policy on major weapon system acquisition.

CURRENT AUTHORITY

Office of Management and Budget

OMB Circular A-109 establishes the present policy guidance for the acquisition of major systems. OMB implemented this Circular on 5 April 1976, to ensure the effectiveness and efficiency of the major system acquisition process. It defines seven major system acquisition management objectives the acquiring agency should meet. These objectives are:

- 1) satisfy the mission need in the intended environment and at the specified level of performance and reliability,

2) have competition between similar or differing system design concepts throughout the entire acquisition process,

3) ensure an appropriate balance between cost, schedule and performance,

4) perform adequate test and evaluation,

5) accomplish system acquisition planning,

6) tailor an acquisition strategy for each acquisition, and

7) maintain the capability to measure the effectiveness of the system against the acquisition goals (18:4-5).

The second, fifth, sixth, and seventh objectives directly relate to reducing costs and enhancing competition through component breakout. To meet these objectives, the Circular requires the procuring agency to establish clear lines of authority, responsibility, and accountability in its management structure. Additionally, the Circular identifies four key decision points to review major acquisitions against the system objectives. These four key decision points, or milestones, are identification and definition of specific mission need, concept demonstration, full-scale development, and full production (18:1-7). The paper will discuss these key decision points after reviewing the regulations that apply to all federal acquisitions-- the Federal Acquisition Regulation.

Federal Acquisition Regulation (FAR)

The FAR, first issued 1 April 1984, replaces the Defense Acquisition Regulation (DAR). The FAR consolidates and reduces the numerous acquisition regulations into one document. Breakout policy, responsibility, guidelines, and review procedures appeared in DAR Section 1-326. These guidelines presented a series of questions in determining whether or not breakout was feasible (4:1:60-1:63). The FAR, while it does not contain a specific subpart on component breakout, addresses the application of component breakout in 7.105(b)(2). Part 7 of the FAR states the requirement of acquisition planning as "... the process by which the effort of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a reasonable cost" (3:7-1). It also states planning should start as soon as DOD identifies the acquisition need to the procuring agency. Part 7 also lists the contents of a written acquisition plan, although specific content depends on the nature, circumstances, and stage of the acquisition. The following areas apply to component breakout:

1) competition and how it will be sustained throughout the acquisition,

2) management information requirements to be used for government monitoring of contractor performance,

3) data rights (including repurchase data) and the estimated cost and intended use of the data, and

4) GFE (3:7-1 - 7-3).

While Part 7 of the FAR addresses what the acquisition planning should accomplish, other parts of the FAR prescribe additional policies and procedures for the acquisition process.

Although it might be relatively easy to identify an item for breakout early in the acquisition plan, ensuring that all the appropriate contractual instruments are in place for an effective transition from CFE to GFE and for future repurchase may not be as easy. Several parts of the FAR identify ways to enhance subcontract management and component breakout opportunities to provide a smooth transition:

1) Part 4.7, Contractor Records Retention, addresses specific records that must be retained by the contractor to meet the records review requirements of the government (3:4-3 - 4-4).

2) Part 17.1 and 17.2, Multiyear Contracting and Options, respectively, are flexible contracting tools that might be in the best interest of the government, depending on the acquisition (3:Part 17).

3) Part 27, Patents, Data, and Copyrights, which describes policies, procedures, and contract clauses for these items (3:Part 27).

4) Part 42.11, Production Surveillance and Reporting, which can require contractors to submit production progress reports for "Government review and analysis of (a) contractor performance plans, schedules, controls, and industrial processes and (b) the contractor's actual performance under them" (3:42-14).

5) Part 43, Contract Modifications, explains bilateral modifications and supplemental agreements to a contract, such as the "purchase agreement" clause used to permit the AF to assume management responsibility in the KC-135 CFM56 reengine program (7:2). And finally,

6) Part 44, Subcontracting Policies and Procedures, which prescribes policies and procedures for consent to subcontract and for contractor purchasing system reviews (CPSR) to evaluate a contractor's purchasing of materials and services, and subcontract management (3:44-1).

Having reviewed the major parts of the FAR that have application for component breakout and contract administration, the next authority sources investigated are the applicable DOD regulations.

Department of Defense

The policy of the DOD is acquisition of major systems in the most efficient and effective manner possible while achieving the operational objectives of the U.S. Armed Forces. DOD issued DODD 5000.1, Major System Acquisition, and DODI 5000.2, Major System Acquisition Procedures, to support the above mentioned policy and comply with OMB Circular A-109. The following list identifies the major acquisition management principles and objectives in DODD 5000.1:

- 1) ensure, to the maximum extent possible, that new systems are obtained from effective design and price competition so as to be cost-effective and responsive to mission requirements;
- 2) readiness and sustainability are acquisition goals equally as important as cost, schedule, and performance;
- 3) program stability will be sought through effective planning, realistic budgeting, economic rates of production, and a tailored acquisition strategy;
- 4) delegate authority to the appropriate level to promote efficiency and clearly establish responsibility and accountability; and,
- 5) strengthen the industrial base and foster competition (5:2-3).

These are the major acquisition objectives, but now it's time to tie these objectives to the key decision points, or milestones, mentioned in the beginning of this chapter.

Having already discussed the four milestones (concept exploration, demonstration and validation, full-scale development, and full production and deployment) of the acquisition process, the DOD components tailor these milestones to minimize acquisition time and cost, while still remaining consistent with the need and the amount of technical risk involved in each program. The DOD component is responsible for the first and last milestone. The first milestone begins with the planning, programming, and budgeting system and is documented through the justification for major system new start (JMSNS). If the program stays within established thresholds, the DOD component makes the last milestone decision. The Secretary of Defense makes the decision if a program is ready to proceed to the second milestone based upon a System Concept Paper (SCP). "The Milestone I decision is a validation of the requirement, based on a preliminary evaluation of concepts, costs, schedule, readiness objectives and affordability" (5:4). At this point, the program goals and thresholds are established to be met and reviewed prior to proceeding to the next milestone. "Milestone II is the decision point to enter full-scale development. It is generally desirable to maintain design competition up to Milestone II decision point, or beyond, if it is determined to be a cost-effective acquisition strategy" (5:5). The Secretary of Defense makes the Milestone II decision based upon a Decision Coordinating Paper/Integrated Program Summary (DCP/IPS). The DCP/IPS summarizes the acquisition for the system's life-cycle and provides a management review of the program. All of the documents used for the milestone decisions (JMSNS, SCP, DCP, and IPS) have a requirement to address the acquisition

strategy, and how it will introduce and maintain competition. The format for the IPS specifically calls for "... plans for competitive breakout of components by both the government and the contractor" (6:22). A procedure contained in DODD 5000.1 best describes how the program manager (PM) develops the acquisition strategy.

9. Tailoring and Flexibility. The acquisition strategy developed for each major system acquisition shall consider the unique circumstances of the individual programs. Programs shall be executed with innovation and common sense. To this end, the flexibility inherent in this Directive shall be used to tailor an acquisition strategy to accommodate the unique aspects of a particular program as long as the strategy remains consistent with the basic logic for system acquisition problem solving and the principles in this Directive for business and management consideration. The acquisition strategy shall normally contemplate narrowing the number of competing alternatives to eliminate concepts no longer considered viable as the acquisition process proceeds. This narrowing of competing alternatives shall be accomplished without interrupting the remaining contracts, and need not be timed to coincide with milestone decisions. However, competition for each phase, including, when appropriate, plans for design competition in the early phases and price competition in production, shall be described in the acquisition strategy (5:7).

These then are the DOD Directives and Instructions that pertain to major system acquisitions. They dictate an acquisition plan that is developed early in the program, maintains competition through component breakout, tailored and flexible to unique circumstances, and executed with innovation and common sense. Next is a look at the AFRs implementing these documents.

Air Force Regulations (AFR)

The AFR 800 series prescribes and establishes the policies of acquisition management for AF acquisition and modification programs. AFR 800-2, Acquisition Program Management, implements DODD 5000.1 and DODI 5000.2. Again, tailoring the acquisition to the needs of the program is essential. It requires a designated PM manage each acquisition program. "Each PM must develop an acquisition strategy to be applied during the program's entire acquisition process, after program initiation. The strategy should form the basis for the PM's program management plan (PMP) and provide an economical, effective, and efficient approach to achieving program objectives" (13:3). The PM needs to plan for component breakout early in the acquisition strategy and the PMP. The next area to be addressed is financial management control.

AFR 800-6, Program Control- Financial, establishes reporting requirements and procedures for the application of financial management control in acquisition and modification programs. This regulation applies to major programs and selected programs, which do not meet the dollar thresholds for major programs, when deemed appropriate by the implementing command or when directed by HQ USAF. To ensure responsible decision making, AF can specify contractually in the contract data requirements list (CDRL), the required information on contractor performance.

The following are examples of financial reporting used in financial analysis and program control to facilitate subcontract management:

1) Cost/Schedule Control Systems Criteria (C/SCSC). "The application of C/SCSC to contractor management control systems under selected acquisition and modification contracts is to assure that defense contractor's financial management systems provide an adequate data base for responsible decision making by both contractor management and DOD components" (14:2). The PM uses these reports, assuming they are providing valid, timely, and auditable data, to properly evaluate cost, schedule, and technical accomplishment (14:2).

2) Cost/Schedule Status Report (C/SSR): "The C/SSR provides a means of collecting summary level data cost and schedule performance status information on contracts on which C/SCSC is not a requirement" (14:2).

3) Cost Performance Report (CPR):

The CPR provides a means of collecting summary level contract cost and schedule performance data from contractors for the purpose of program management of major acquisition and modification program contracts on which C/SCSC is a requirement. It facilitates timely identification of problems by reporting significant progress to date, and deviations from planned schedule and costs. It also provides a report of contractor management actions that are being taken to resolve existing problems (14:2).

4) Contract Cost Data Reporting (CCDR): "The CCDR provides a consistent, disciplined method for establishing a historical data base by collecting actual and projected data on acquisition and modification programs for use in cost estimating/cost analysis studies, programming, budgeting, and procurement activities" (14:2).

The tailoring of financial requirement reporting to selected acquisition and modification programs provides the capability to effectively perform subcontract management functions and component breakout. But the cost of owning the system over its service life is also a concern.

Life Cycle Cost (LCC) Management, AFR 800-11, is an integral part of the acquisition process and the whole life cycle of a system. "It requires a cost conscious attitude and a plan for reducing or controlling cost" (15:1). In

the acquisition phase, LCC is an equal player along with performance, schedule, and supportability; therefore, a weighting factor of LCC for use in the source selection should be decided during the business strategy planning. The LCC management plans, PMP, and the acquisition plans document the LCC objectives and the efforts to accomplish these objectives (15:2-4). Early planning must also address which components will be provided as GFE versus CFE components.

"During development planning for new systems or modifications, the program strategy, criteria, and constraints for the selection of CFE vs GFE must be established" (16:1). The CFE vs GFE Selection Process, AFR 800-22, not only applies to initial production contracts, but also to follow-on buys during the system's life cycle. The intent and goal of this regulation is to select the acquisition method (CFE or GFE) which promises to be the most beneficial to the government. Besides reducing costs, additional benefits of GFE are reducing lead times, promoting standardization, or making better use of strategic minerals (16:1).

The Air Force Systems Command/Air Force Logistics Command (AFSC/AFLC) regulation, which implements AFR 800-22, is AFSC/AFLC Regulation 800-31. This regulation "...establishes policies and procedures, and assigns responsibilities for the GFE/CFE selection process and the acquisition management of GFE" (12:1). The policy stated in this regulation requires PMs make maximum use of designated standard and preferred equipment in new system developments and provide this equipment as GFE. A systematic selection method, documented in the program and acquisition planning documents, accomplishes this objective as well as describing the approach for identifying, selecting, acquiring, and managing contracts for all equipment. The program office reviews annually all CFE items for conversion to GFE. PMs document the rationale for retaining the status quo or breakout decision. If an item is CFE after the development phase, and the design is stable, then the cost to the prime contractor in supplying that item becomes minimal.

Accordingly, to provide an opportunity to effect significant cost savings, procurement programs for systems equipments (or for major subsystems, equipment, components) will include plans to ultimately assume the responsibility for directly procuring as GFE, selected items which were initially CFE (component breakout) (9:6-1).

Component breakout, whether accomplished to provide cost savings by direct purchase or to enable competitive reprocurement, is not feasible without all the required technical data.

Competitive reprocurement is possible only when complete and updated engineering data are available. "Therefore, program managers must plan from the outset of the acquisition process to guide contractors and subcontractors in the preparation of engineering data to make sure that accurate and acceptable engineering data are delivered promptly at the minimum life cycle cost" (17:1). AFR 800-34, Engineering Data Acquisition, is the regulation

that establishes policies and defines responsibilities for acquiring engineering data from contractors. It is AF policy to acquire engineering data rights early on in a program and to establish a specific plan prior to full-scale development (17:3). PMs should obtain these rights during source selection when competition still holds costs down or as a priced option with a deferred delivery date (17:1-2). "Both the prime contractor and subcontractors should clearly understand the Air Force's intent to acquire engineering data for support of items that proceed into the production and development phase" (17:2). It is also the responsibility of the PM to ensure the procuring contract officer (PCO) includes the appropriate data rights clauses in the request for proposal (RFP) and the contract. "These clauses require the contractor to notify the PCO when the contractor or any subcontractor, vendor, or supplier to the contractor intends to use any item having data subject to limited rights" (17:2). The next chapter further discusses data rights in light of a recently enacted law, but first the requirements must be put in the contract.

"If it's not in the contract, you won't get it." So far this chapter has focused on key items within acquisition management (AFR 800-2), program control (AFR 800-6), LCC (AFR 800-11), CFE vs GFE (AFR 800-22), and data acquisition (AFR 800-34). Now this paper addresses the means to ensure these items are planned for and become a part of the contract. This portion will deal with the following areas: acquisition planning, RFP, source selection, and contract administration. It is in these areas that the planning for component breakout and competitive reprocurement starts. Let's begin with acquisition planning.

Acquisition planning is the foundation for building a successful program. There are four parts of acquisition planning: the business strategy panel (BSP), the contract strategy paper (CSP), the acquisition plan (AP), and the solicitation review panel (SRP). The PM holds the BSP very early in the procurement phase to assess the application of experience gained and lessons learned from previous acquisitions and to suggest new techniques or methods that benefit the forthcoming acquisition. From the BSP, the PM writes a CSP to provide a detailed approach on how to contract the program. A CSP also addresses the acquisition strategy, risk-analysis, contract types, and warranties to ensure the field is implementing standard acquisition and contracting policies. The AP is the contract planning document that presents the milestones to achieve the acquisition goals. Major points of the AP are delivery requirements, management information/program control requirements, component breakout, and reprocurement data. The last area in acquisition planning is the SRP, which is the last opportunity of ensuring that all program objectives are addressed and correctly incorporated into the RFP before release to industry (10:11-1-2).

The second area of this contracting discussion is the RFP, which solicits industry's offers. The RFP is a complete document reflecting the program requirements, instructions on how to prepare the proposal, how the proposal will be evaluated, and special provisions such as "... anticipated priced options, incentives, warranties, and retention of data rights for acquiring balanced acquisition and ownership resource use..." (10:11-2). The RFP also

includes the LCC model and the source selection criteria. PMs may release a draft RFP to obtain industry comments prior to official release. The official release date of the RFP marks the beginning of source selection.

The PM needs to tailor the source selection procedures-- formal, two-step, or lowest evaluated price (LEP), to the individual acquisition. AFR 70-15, Source Selection Policy and Procedures, describes each of these types of source selections.

The final point of the discussion on contracting is the administration of the contract. The administrative contracting officer (ACO), in conjunction with the PM, and based upon the management information program control requirements which were established during acquisition planning, administers the contract until termination.

SUMMARY

This chapter highlights the current authority for component breakout from OMB, FAR, DOD and AFRs. In summarizing the guidance contained in these sources, as it pertains to component breakout, two main points emerge. First, through early planning, the acquisition strategy should be tailored and flexible to introduce and maintain competition for each acquisition. And secondly, the management information required to monitor contractor performance and the engineering data requirements must be incorporated into the RFP so they can be procured while the competitive environment still exists. After which, the conversion from CFE to GFE must be evaluated not only during the initial procurement but for follow-on buys as well.

The existing procurement system is not perfect, as evidenced by the prices that are currently being paid for some items that have been brought out in the media. The next chapter will discuss the findings and recommendations of a recently completed AF study and the impact of a new public law to improve the procurement process.

Chapter Three

FORTHCOMING CHANGES

INTRODUCTION

Chapter One identified the two major problems restricting component breakout; Chapter Two reviewed the current authority governing the acquisition process and identified data rights and second sources as impediments to reducing costs and enhancing competition. These problems also restrict the opportunity for component breakout. Public concern over the DOD acquisition process and the cost of spare parts has prompted both internal and external action.

This chapter discusses the related findings and recommendations of the Air Force Management Analysis Group (AFMAG) report on spare parts acquisition and the changes legislated in the Small Business and Federal Procurement Competition Enhancement Act of 1984, referred to as Public Law (PL) 98-572. This paper examines each of these two documents and their impact on the two major problem areas.

AIR FORCE MANAGEMENT ANALYSIS GROUP (AFMAG)

The Secretary of the Air Force and the AF Chief of Staff directed the formation of the AFMAG in May 1983. The group's charter was to conduct an in-depth review of the entire spare parts and weapon system acquisition process, and recommend changes resolving the overpricing problem. AFMAG completed the report, "Spare Parts Acquisition", on 12 October 1983. The report contains 159 recommendations to correct problems ranging from how the AF acquires systems to how it manages parts already in the inventory. AFMAG divides the recommendations, to improve the manner in which the AF acquires and manages parts, into near and long term initiatives.

The two major near-term recommendations, with the most impact on the acquisition process, are the formation of competition advocates and a change to the cost allocation methods. The competition advocates have three major objectives: a) screen spare parts for component breakout to enhance

competition, b) conduct a value analysis of spare parts to ensure price reasonability, and c) seek new supplier sources and provide for qualification of new suppliers (11:2-41). The change in the cost allocation methods is an effort to determine the price of a part based on the "intrinsic value" rather than a prorated cost of all parts by contract line items. Otherwise, the unit price of a high value item appears underpriced, and the unit price of a low value item seems exorbitantly overpriced (11:2-34). The use of a cost allocation method based on value not only provides a realistic price of an item, but it also flags an item for potential breakout to achieve cost savings.

The long-term recommendations identify and propose changes to correct inadequacies of the existing procurement process. The AFMAG recommendations, which apply to weapon system development, are categorized into four main areas:

- 1) source selection,
- 2) phased support concept,
- 3) management of engineering/acquisition data, and
- 4) breakout over entire system life (11:3-2).

The following section discusses each of these as they relate to component breakout.

"The AFMAG recommends the early planning and establishment of a spares acquisition strategy involving major input from industry during competitive system source selection" (11:3-3). This recommendation not only requires all acquisition planning documents incorporate a breakout strategy, but it also becomes a ranked source selection criteria. This recommendation, then, requires a contractor's proposal contain a plan and a schedule to accomplish the breakout of CFE during the acquisition and production phase of a contract as well as a plan to qualify alternate manufacturing sources when an item has less than two qualified sources of supply. In addition to the breakout plan, the contractor also submits an overall spares strategy that includes the amount of spares to be procured in a given period to achieve economic order quantities. The overall impact of this recommendation is that it places the onus on the contractor to submit a proposal that fully considers component breakout and alternate sources of supply to enhance competition up front during the source selection. Another item that can be evaluated during source selection is the contractor's proposed method of support for the system.

"Interim Contractor Support occurs in most programs but is not acquired in accordance with an established plan. Typically, this support is acquired on an urgent basis and at premium prices. Provisioning and Interim Contractor Support (ICS) planning have not been effectively integrated" (11:2-22). ICS allows a planned transition from contractor support to organic support of an item. Planning on an ICS contract at the beginning of an acquisition provides

three benefits. First, the ICS can be obtained while the competitive environment still exists. Secondly, it allows an orderly transition to an organic support posture after the initial operational reliability and maintainability are established. And finally, after the operational reliability and maintainability features of a system have matured and stabilized, the provisioning of spares can be realistically forecasted and procured. An ICS period also allows the engineering design data to stabilize while using contractor support.

"Since the adequacy and availability of technical data is the greatest inhibitor to the Air Force's ability to increase competition, many recommendations are made to improve the management of technical data" (11:3-3). AFMAG divided the recommendations on data management into engineering and acquisition data. The recommendations start with the automation of the AF engineering data repositories to improve the receiving, storing, distributing and controlling of acquired data. Next, the major thrust of the recommendations is to acquire complete and warranted engineering and acquisition data while still in the competitive environment to enable competitive spare parts acquisition (11:40-51).

The competitive reprourement, or breakout, should continue throughout the life of the system. The AFMAG report highlights an area of concern that will require attention to ensure competitive reprourement is sustained in the AF. The main problem is manpower and the ability to motivate the personnel associated with the acquisition process. From 1973 to 1979, AFLC lost over 22,000 personnel authorizations; and over 11,000 of these were lost between 1973 and 1975 (11:2-41). This loss of personnel and the large increase of defense spending, increases the workload of existing personnel, and adversely affects the ability to train these people. The AFMAG report recommends establishing a functional award to recognize excellence in increasing breakout and spare parts competition (11:164). In addition, "The management rating system for the ALC organizations must be restructured to place a more balanced evaluation of an organization's effectiveness in relation to quality pricing, negotiation effectiveness, and expansion of effective competition" (11:165).

These are the major recommendations of the AFMAG report to improve the AF acquisition process. While this is an internal effort to improve acquisition, external forces are also at work.

PUBLIC LAW (PL) 98-577

As a result of public and congressional interest to improve the efficiency of the military procurement process, Congress passed the Small Business and Federal Procurement Competition Enhancement Act of 1984, on 30 October. This act amends the Small Business Act, the Federal Property and Administrative Services Act of 1949, and the Office of Federal Procurement Policy Act. The purpose of this act is to enhance competition and the cost effectiveness of the government procurement process by eliminating practices

and procedures that inhibit full and open competition (2:3066) The major changes that are enacted by this law will be discussed as it applies to each of the three acts which are amended.

Small Business Act

The major amendment to the Small Business Act is the establishment, within the Small Business Administration (SBA), of breakout procurement center representatives to be assigned to each of the major procurement centers. The responsibility of the breakout representative is to advocate the breakout of items for competitive procurement, and the procurement of services and supplies through full and open competition. To accomplish this tasking, the breakout representatives are authorized by this PL (2:3080-3081) to:

- (A) attend any provisioning conference or similar evaluation session during which determinations are made as to whether requirements are to be procured through other than full and open competition and make recommendations with respect to such requirements to the members of such conference or session;
- (B) review, at any time, restrictions on competition previously imposed on items through acquisition method coding or similar procedures, and recommend to personnel of the appropriate activity the prompt reevaluation of such limitations;
- (C) review restrictions on competition arising out of restrictions on the rights of the United States in technical data, and, when appropriate, recommend that personnel of the appropriate activity initiate a review of the validity of such an asserted restriction;
- (D) obtain from any governmental source, and make available to personnel of the appropriate activity, unrestricted technical data necessary for the preparation of a competitive solicitation package for any item of supply or service previously procured noncompetitively due to the unavailability of such unrestricted technical data;
- (E) have access to the unclassified procurement records and other data of the procurement center;
- (F) receive unsolicited engineering proposals and, when appropriate (i) conduct a value analysis of such proposal to determine whether such proposal, if adopted, will result in lower costs to the United States without substantially impeding legitimate

acquisition objectives and forward to personnel of the appropriate activity recommendations with respect to such proposals, or (ii) forward such proposals without analysis to personnel of the activity responsible for reviewing such proposals and who shall furnish the breakout procurement center representative with information regarding the disposition of any such proposals; and

(G) review the systems that account for the acquisition and management of technical data within the procurement center to assure that such systems provide the maximum availability and access to data needed for the preparation of offers to sell to the United States those supplies to which such data pertain which potential offerors are entitled to receive.

In addition, the breakout representative must approve any contract award, using other than competitive procedures, that exceeds \$100,000 but less \$1,000,000 (noncompetitive contracts exceeding \$1,000,000 require general officer, or civilian equivalent approval) (2:3084). PL 98-577 requires the Administrator of the SBA to prepare and submit to Congress an annual report documenting the cost savings achieved by the breakout representatives and an estimate of the extent which competition has increased by the breakout efforts (2:3082).

Federal Property and Administrative Services Act of 1949

PL 98-577 amends this act by adding a new subsection to the section titled Planning For Future Competition, and adds the following new sections: Encouraging New Competition, Validation Of Proprietary Data Restrictions, Commercial Pricing For Supplies, and Economic Order Quantities. Each of these sections will be discussed separately.

Planning For Future Competition. This new subsection requires that a solicitation for a development contract for a major system contain the following considerations:

1) "Proposals to incorporate in the design of the major system items which are currently available within the supply system of the Federal agency responsible for the major system, available elsewhere in the national supply system, or commercially available from more than one source" (2:3068).

2) "With respect to items that are likely to be required in substantial quantities during the system's service life, proposals to incorporate in the design of the major system items which the United States will be able to acquire competitively in the future" (2:3068).

3) "Proposals to provide to the United States the right to use technical data to be provided under the contract for competitive reprocurement of the item, together with the cost to the United States, if any, of acquiring such technical data and the right to use such data" (2:3068).

4) "Proposals for the qualification or development of multiple sources of supply for the item" (2:3068).

Encouraging New Competition. This new section provides procedures for the establishment of qualification requirements, which means the "...requirement for testing or other quality assurance demonstration that must be completed by an offeror before award of a contract" (2:3069). The intent of this new section is to have the specific qualification requirements known so that additional sources of supply can be solicited to maintain competition for future reprocurements (2:3070).

Validation Of Proprietary Data Restrictions. This new section requires that technical data which has been marked as restricted be reviewed by the PCO, the agency competition advocate, and or the SBA breakout representative for validity. The contractor shall be prepared to present a written justification to support the asserted restriction if challenged by the PCO. If the contractor fails to submit the justification, the restrictions may be cancelled by the PCO after giving notice to the contractor. This section further states that if the government's challenge to the asserted restriction is sustained, the contractor is liable to the government for the cost of evaluating the restriction (2:3071-3072).

Commercial Pricing For Supplies. This new section requires that if a contract is entered into, using other than competitive procedures, it must contain a certification from the contractor that the price for the item does not exceed the lowest price that it currently being sold to the public. This certification may not be appropriate if the differences in quantity, delivery, or other terms and conditions from the commercial contract can be substantiated (2:3072-3073).

Economic Order Quantities. This new section allows the procuring agency to procure items which will result in the total cost and unit cost that is most advantageous to the government. This section also permits solicitations to be issued with instructions to offerors to recommend a different quantity of the items proposed to be procured if it is economically advantageous to the government (2:3073).

The Office Of Federal Procurement Policy Act

This last act which is amended by PL 98-577 adds a section titled Rights In Technical Data. It states that the government will have unlimited rights to technical data developed exclusively with federal funds. "The interest of the United States is increasing competition and lowering costs by developing and locating alternative sources of supply and manufacture" (2:3075). Contracts shall contain the following provisions for technical data:

- (1) defining the respective rights of the United States and the contractor or subcontractor (at any tier) regarding any technical data to be delivered under the contract;
- (2) specifying the technical data, if any, to be delivered under the contract and delivery schedules for such delivery;
- (3) establishing or referencing procedures for determining the acceptability of technical data to be delivered under the contract;
- (4) establishing separate contract line items for the technical data, if any, to be delivered under the contract;
- (5) to the maximum practicable extent, identifying, in advance of delivery, technical data which is to be delivered with restrictions on the right of the United States to use such data;
- (6) requiring the contractor to revise any technical data delivered under the contract to reflect engineering design changes made during the performance of the contract and affecting the form, fit, and function of the items specified in the contract and to deliver such revised technical data to an agency within a time specified in the contract;
- (7) requiring the contractor to furnish written assurance at the time the technical data is delivered or is made available that the technical data is complete and accurate and satisfies the requirements of the contract concerning technical data;
- (8) establishing remedies to be available to the United States when technical data required to be delivered or made available under the contract is found to be incomplete or inadequate or to not satisfy the requirements of the contract concerning technical data; and

(9) authorizing the head of the agency to withhold payments under the contract (or exercise such other remedies as the head of the agency considers appropriate) during any period if the contractor does not meet the requirements of the contract pertaining to the delivery of technical data (2:3075-3076).

These then are the major changes in the procurement practices and procedures that are enacted by PL 98-577. It is clear that Congress is attempting to remove constraints on data rights and encourage alternate sources of supply, all of which should foster greater breakout opportunities and competition.

SUMMARY

The AFMAG report on the spare parts acquisition is a detailed investigation of the current procurement process. It highlights the lack of competition that exists today and provides insight to the two major areas which restrict competition and component breakout; data rights and alternate manufacturing sources. The AFMAG recommendations to remove these two problem areas have been heard by the Congress and enacted in PL 98-577. All of the changes in this new law, which were discussed, will take affect on 1 April 1985. The AF is also quickly acting on the AFMAG recommendations and, at the time of this writing, over 100 of the 159 recommendations have been implemented. It is too early to tell how much these two efforts will improve the acquisition process and component breakout, but they are attacking the issues head-on and appear to be excellent attempts to reduce costs, enhance competition, and increase the component breakout opportunities. The next chapter will present the findings, conclusions, and recommendations of this paper.

Chapter Four

FINDINGS

This research examined the current manner in which component breakout is accomplished and to recommend changes that will enhance this process, the following findings are identified:

1. "Privity of contract" precludes direct program office/manager influence with subcontractors.
2. The lack of competition in the acquisition of spare parts has declined from a rate of 37.5% in 1973 to 20.7% in 1982.
3. In 1982, 16% of the 364,000 spare parts could not be broken out for competitive reprocurement due to missing or inadequate data.
4. In 1982, 8% of the 364,000 spare parts would have to be procured sole source because of limited data rights assertions on the engineering data.
5. The mark up rates which contractors add to the vendor's cost varies, ranging from 250% to 28%, and significantly increases component prices.
6. The current authority and the existing component breakout procedures all stress early acquisition planning, which is tailored to the program needs, to provide components as GFE or the breakout of those items which would be to the economic benefit of the government.
7. The AFMAG report on spare part acquisition contains 159 recommendations to correct the problems which have led to the overpricing of parts, in particular, the lack of competition due to data rights and limited sources of supply.
8. The recently enacted public law is an effort to enhance competition and facilitate component breakout, to require contractors to propose items which are currently in the supply system or which the government will be able to acquire competitively in the future from multiple sources, and to warrant the data to be delivered.

CONCLUSIONS

Based on the findings listed above, the following conclusions are drawn:

1. Early identification and incorporation into the contract of program control reporting documents will provide the capability to effectively perform subcontract management.
2. The lack of competition in the acquisition of spare parts is primarily due to missing or inadequate engineering data, and sole source procurement of items with limited data rights assertions which preclude the development of alternate manufacturing sources.
3. The numerous recommendations of the AFMAG report, which are currently being implemented, should significantly reduce acquisition costs and increase competition through improved data management, competition advocates, and a value based cost allocating method, all of which will also enhance component breakout opportunities.
4. The existing acquisition authority and AF regulations contain adequate guidance and flexibility to plan for and to accomplish component breakout.
5. PL 98-577 is a positive effort, by the Congress, to remove the two major problem areas which inhibit component breakout; namely, data rights and alternate manufacturing sources.

RECOMMENDATIONS

The final results of this paper are presented below and represent the recommendations to enhance component breakout in the acquisition process.

1. The remaining AFMAG recommendations and PL 98-577 should be implemented as quickly as possible.
2. No further changes to component breakout procedures should be considered until the impact and results of all of the AFMAG recommendations and PL 98-577 have been reviewed and evaluated.

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